

What is claimed is:

1. An adjustment arrangement of an optical element, in particular of a lens in an optical system, the optical element having a circumference and being mounted in a mount by a number of bearing feet arranged in a distributed manner over the circumference of the optical element, the optical element being selectively deformable by actuators, and at least some of the bearing feet being engaged by at least one actuator in such a way that the respective bearing foot can be displaced in a direction substantially orthogonal to said circumference.
2. The adjustment arrangement as claimed in claim 1, characterized in that a force which runs parallel to the direction of the optical axis can be applied to the respective bearing foot by the actuators.
3. The adjustment arrangement as claimed in claim 1, characterized in that each of the bearing feet is formed in an L-shaped manner, the one leg of the bearing foot being connected at its free end to the mount, and a bearing surface for the optical element being arranged in the region of the free end of the other leg.
4. The adjustment arrangement as claimed in claim 1, characterized in that each of the bearing feet engaged by one of the actuators has a lever element running in a direction parallel to the optical axis, a bearing surface for the optical element and at least one pivot point, the actuator engaging in

the region of the lever element in such a way that the bearing surface can be displaced in the direction of the optical axis.

- 5 5. The adjustment arrangement as claimed in claim 4, characterized in that each of the bearing feet engaged by one of the actuators has two pivot points formed as solid joints , which are arranged at least approximately in the region of a plane in
10 which the centroid of the bearing surface also lies, the one end of the lever element being arranged between the two solid joints, the one solid joint connecting the lever element to the mount and the other solid joint connecting the lever element
15 to the region of the bearing surface, and the actuator engaging the end of the lever element remote from the solid joints.
- 20 6. The adjustment arrangement as claimed in claim 4, characterized in that each of the bearing feet engaged by one of the actuators is formed in a U-shaped manner, the one leg of the bearing foot being connected to the mount, and the other leg being connected to the region of the bearing surface via
25 the at least one joint, and the actuator engaging in the region facing a base of the U-shaped bearing foot.
- 30 7. The adjustment arrangement as claimed in claim 6, characterized in that, on the side remote from the base of the U-shaped bearing foot, a stabilizing element is arranged between the two legs of the U-shaped bearing foot and is connected to each of the

legs by a solid joint in each case, the two solid joints being arranged at least approximately in a plane which is formed at least approximately perpendicular to the optical axis.

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8. The adjustment arrangement as claimed in claim 4, characterized in that the force exerted by the actuators on the respective bearing feet acts on the respective region of the bearing foot in a direction perpendicular to the optical axis.

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9. The adjustment arrangement as claimed in claim 1, characterized in that the actuators are formed as passively adjustable actuating means.

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10. The adjustment arrangement as claimed in claim 8, characterized in that the actuating means are formed as an actuating screw.

20 11. The adjustment arrangement as claimed in claim 1, characterized in that the actuators are formed as active actuators.

12. The adjustment arrangement as claimed in claim 11, characterized in that the actuators act on the respective bearing foot via gear elements.

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13. The adjustment arrangement as claimed in claim 12, characterized in that the gear element is formed as an actuating screw.

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14. The adjustment arrangement as claimed in claim 11,
characterized in that the actuators are formed as
motor drives.
- 5 15. The adjustment arrangement as claimed in claim 11,
characterized in that the actuators are formed as
piezo elements or piezo stacks.
- 10 16. The adjustment arrangement as claimed in claim 11,
characterized in that the actuators are formed as
pneumatic or hydraulic actuators.
- 15 17. The adjustment arrangement as claimed in claim 1,
characterized in that fixed bearing feet and bear-
ing feet respectively engaged by one of the actua-
tors are arranged alternately.
- 20 18. The adjustment arrangement as claimed in claim 1,
characterized in that bearing feet which are en-
gaged by one of the actuators are respectively ar-
ranged at specific angles around the optical ele-
ment, the other bearing feet being formed as fixed
bearing feet.
- 25 19. The adjustment arrangement as claimed in claim 18,
characterized in that the bearing feet respectively
engaged by one of the actuators are arranged in re-
lation to one another at an angle of 120° in each
case.
- 30 20. The adjustment arrangement as claimed in claim 18,
characterized in that the bearing feet respectively
engaged by one of the actuators are arranged in re-

lation to one another at an angle of 90° in each case.

21. The projection lens system as claimed in claim 1,
5 characterized in that a lens is provided as the optical element.

22. A projection lens system in semiconductor lithography with a number of optical elements, at least one
10 optical element being mounted in a mount by a number of bearing feet arranged in a distributed manner over the circumference of the optical element, each of the bearing feet having two pivots formed as solid joints, one end of a lever element being
15 arranged between the two solid joints, one of said solid joints connecting the lever element to the mount and the other solid joint connecting the lever element to a region of the optical element, and the actuator engaging an end of the lever element
20 remote from the solid joints.

23. The projection lens system as claimed in claim 22, characterized in that the solid joints are arranged at least approximately in the region of a plane in
25 which the centroid of the bearing surface also lies.

24. The projection lens system as claimed in claim 22, characterized in that each of the bearing feet engaged by one of the actuators is formed in a U-shaped manner, the one leg of the bearing foot being
30 connected to the mount, and the other leg being

connected to the region of the bearing surface via the at least one joint.

25. The projection lens system as claimed in claim 24,
5 characterized in that, on the side remote from the base of the U-shaped bearing foot, a stabilizing element is arranged between the two legs of the U-shaped bearing foot and is connected to each of the legs by a solid joint in each case, the two solid
10 joints being arranged at least approximately in a plane which is formed at least approximately perpendicular to the optical axis.
26. The projection lens system as claimed in claim 22,
15 characterized in that at least some of the bearing feet are engaged by actuators for the specific deformation of the optical element in such a way that the respective bearing foot can be displaced in the direction of the optical axis.
- 20 27. The projection lens system as claimed in claim 26, characterized in that the actuator engages the end of the lever element remote from the solid joints.
- 25 28. The projection lens system as claimed in claim 24, characterized in that the actuator engages in the region facing a base of the U-shaped bearing foot.
- 30 29. The projection lens system as claimed in claim 26, characterized in that the force exerted by the actuators on the respective bearing feet acts on the respective region of the bearing foot in a direction perpendicular to the optical axis.

30. The projection lens system as claimed in claim 26, characterized in that the actuators are formed as active actuators.

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31. The projection lens system as claimed in claim 30, characterized in that the actuators act on the respective bearing foot via gear elements.

10 32. The projection lens system as claimed in claim 30, characterized in that the actuators are formed as motor drives.

15 33. The projection lens system as claimed in claim 30, characterized in that the actuators are formed as piezo elements or piezo stacks.

20 34. The projection lens system as claimed in claim 30, characterized in that the actuators are formed as pneumatic or hydraulic actuators.

25 35. The projection lens system as claimed in claim 26, characterized in that fixed bearing feet and bearing feet respectively engaged by one of the actuators are arranged alternately.

30 36. The projection lens system as claimed in claim 26, characterized in that bearing feet which are engaged by one of the actuators are respectively arranged at specific angles around the optical element, the other bearing feet being formed as fixed bearing feet.

37. The projection lens system as claimed in claim 36,
characterized in that the bearing feet respectively
engaged by one of the actuators are arranged in re-
lation to one another at an angle of 120° in each
5 case.

38. The projection lens system as claimed in claim 36,
characterized in that the bearing feet respectively
engaged by one of the actuators are arranged in re-
10 lation to one another at an angle of 90° in each
case.

39. The projection lens system as claimed in claim 22,
characterized in that a lens is provided as the op-
15 tical element.

40. A projection lens system in semiconductor lithogra-
phy with a number of optical elements and with at
least one optical element being mounted in a mount
20 by a number of bearing feet arranged in a distrib-
uted manner over the circumference, the optical
element being selectively deformable by actuators,
and at least some of the bearing feet being engaged
by at least one actuator in such a way that the re-
25 spective bearing foot can be displaced in a direc-
tion substantially orthogonal to said circumfer-
ence.

41. The projection lens system as claimed in claim 40,
30 characterized in that a lens is provided as the op-
tical element.

42. The projection lens system as claimed in claim 40, characterized in that each of the bearing feet is formed in an L-shaped manner, the one leg of the bearing foot being connected at its free end to the mount, and a bearing surface for the optical element being arranged in the region of the free end of the other leg.

43. The projection lens system as claimed in claim 40, characterized in that each of the bearing feet engaged by one of the actuators has a lever element running in a direction parallel to the optical axis, a bearing surface for the optical element and at least one pivot point, the actuator engaging in the region of the lever element in such a way that the bearing surface can be displaced in the direction of the optical axis.

44. The projection lens system as claimed in claim 43, characterized in that each of the bearing feet engaged by one of the actuators has two pivot points formed as solid joints, the one end of a lever element being arranged between the two solid joints, the one solid joint connecting the lever element to the mount and the other solid joint connecting the lever element to a region of the bearing surface, and the actuator engaging the end of the lever element remote from the solid joints.

45. The projection lens system as claimed in claim 44, characterized in that the solid joints are arranged at least approximately in the region of a plane in

which the centroid of the bearing surface also lies.

46. The projection lens system as claimed in claim 43
5 or 43, characterized in that each of the bearing
feet engaged by one of the actuators is formed in a
U-shaped manner, the one leg of the bearing foot
being connected to the mount, and the other leg be-
ing connected to the region of the bearing surface
10 via the at least one joint, and the actuator engag-
ing in the region facing a base of the U-shaped
bearing foot.

47. The projection lens system as claimed in claim 46,
15 characterized in that, on the side remote from the
base of the U-shaped bearing foot, a stabilizing
element is arranged between the two legs of the U-
shaped bearing foot and is connected to each of the
legs by a solid joint in each case, the two solid
20 joints being arranged at least approximately in a
plane which is formed at least approximately per-
pendicular to the optical axis.

48. The projection lens system as claimed in claim 40,
25 characterized in that the force exerted by the ac-
tuators on the respective bearing feet acts on the
respective region of the bearing foot in a direc-
tion perpendicular to the optical axis.

30 49. The projection lens system as claimed in claim 40,
characterized in that the actuators are formed as
passively adjustable actuating means.

50. The projection lens system as claimed in claim 49,
characterized in that the actuating means are
formed as an actuating screw.
- 5 51. The projection lens system as claimed in claim 40,
characterized in that the actuators are formed as
active actuators.
- 10 52. The projection lens system as claimed in claim 51,
characterized in that the actuators act on the re-
spective bearing foot via gear elements.
- 15 53. The projection lens system as claimed in claim 52,
characterized in that the gear element is formed as
an actuating screw.
- 20 54. The projection lens system as claimed in claim 51,
characterized in that the actuators are formed as
motor drives.
- 25 55. The projection lens system as claimed in claim 51,
characterized in that the actuators are formed as
piezo elements or piezo stacks.
- 30 56. The projection lens system as claimed in claim 51,
characterized in that the actuators are formed as
pneumatic or hydraulic actuators.
57. The projection lens system as claimed in claim 40,
characterized in that fixed bearing feet and bear-
ing feet respectively engaged by one of the actua-
tors are arranged alternately.

58. The projection lens system as claimed in claim 40, characterized in that bearing feet which are engaged by one of the actuators are respectively arranged at specific angles around the optical element, the other bearing feet being formed as fixed bearing feet.
59. The projection lens system as claimed in claim 58, characterized in that the bearing feet respectively engaged by one of the actuators are arranged in relation to one another at an angle of 120° in each case.
60. The projection lens system as claimed in claim 58, characterized in that the bearing feet respectively engaged by one of the actuators are arranged in relation to one another at an angle of 90° in each case.
61. The projection lens system as claimed in claim 44, characterized in that the bearing feet are provided with stabilizing elements.